A Survey of the Aphodiinae, Hybosorinae and Scarabaeinae (Coleoptera: Scarabaeidae) from Small Wet Forests of coastal New South Wales, Part 2: Barrington Tops to the Comboyne Plateau.

By G. A. Williams* and T. Williams*

Abstract

Records of Aphodiinae, Hybosorinae and Scarabaeinae taken at wet forests in the Barrington Tops, Copeland and Dingo Tops and the Comboyne Plateau are listed. Data includes dates of collection, numbers of individuals encountered, bait type or collection method used, vegetation type, soil type and groundcover. Significant distributional extensions are listed for a number of species and the occurrence of partial carpophagy is recorded for the first time in the Australian Scarabaeini and Coprini.

Introduction

Part 2 of this study records the results from the baited pit-fall trapping of dung beetles undertaken in the high altitude, and associated escarpment, wet forests situated from the Barrington Tops region northeast to the Comboyne Plateau, New South Wales.

The first part (Williams and Williams 1982) surveyed sites between Nowra and Newcastle on the New South Wales south and central coast. Survey results from the lower near-coastal mountains and littoral rainforests to the east, of the region covered in Part 2, will be published in latter parts.

A survey of the region is of interest as previously documented records are restricted to the southeast section of the Barrington Tops (mainly the Upper Allyn and Barrington Guest House area) and the Comboyne Plateau (Matthews 1972 and 1974). The species previously recorded from the wet forest types of these areas were few and the fauna of the extensive intervening forests are unrecorded.

A minimum of two baited pit-fall traps were placed at each site per visit and frequently a variety of bait types were simultaneously offered. A map of the study sites is given in Fig. 1. Descriptions of site vegetation, soil type and groundcover are briefly given in Table 1. A list of species encountered is given in Table 2.

Discussion

Increasingly north from Sydney there is to be found a greater degree of generic diversity and species numbers within the Australian wet forest restricted dung beetle fauna. The combination of low temperatures and low rainfall restricts much of the fauna to the northeast corner of the continent. However, the Hawkesbury Sandstone country of the Sydney region may also impose a further impediment to the potential southward movement of species. The bedrock of this region weathers to a poor soil type upon which relatively little rainforest or wet sclerophyll forest is established.

North of Newcastle, along the Great Dividing Range, are to be found more expansive tracts of wet forest established on richer basaltically derived soils. These forests form the southern end of a line of spatially more substantial wet forest types extending northwards into southeast Queensland. There is an outlying isolated tract of rainforest in the Liverpool Ranges to the west of Barrington Tops and to the south rainforest

*c/o Post Office,
Lansdowne via Taree.
N.S.W. 2430.

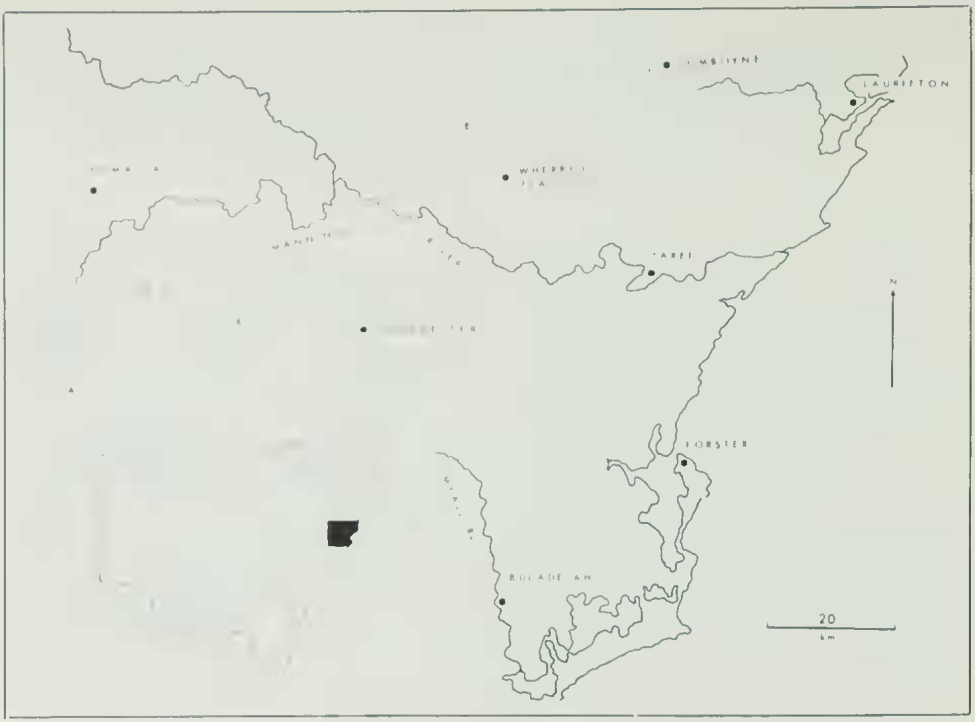

Fig. 1. Map of Study sites.
A. Allyn River Forest Park. Chichester State Forest.
B. Copeland Tops State Forest.
C. Mitchell's Creek Rest Area. Barrington Tops State Forest.
D. Moppy Lookout Rest Area. Barrington Tops State Forest.
E. Dingo Tops Forest Park. Dingo State Forest.
F. Boorganna Nature Reserve.

Fig. 2. Comboyne Plateau rising from the northwest corner of the Manning Valley, north N.S.W

is restrieted to a series of disjunct "islands". In the Wollemi National Park to the south of the Barrington Tops there are a series of mountain peak-restrieted rainforests that were not sampled in Part 1; these include Mounts Kerry, Coriaday and Monundilla. A survey of the mountain assoeiated wet forests of this region would be of interest to ascertain the distributional demarcation of the two known speeies of the genus *Aptenocanthon* (*A. hopsoni* (Carter) and *A. rossi* Matthews), the only endemie genus to the total study area.

A number of significant range extensions were noted during this part of the

survey; previous published records are given.

Onthophagus arrilla Matthews was previously recorded from the Queensland-New South Wales border (Matthews 1972) and *O. longipes* Paulian had been recorded from southern Victoria, the Australian Capital Territory and the New South Wales south coast (Matthews 1972, Williams and Williams 1982). *Onthophagus kiambram* Storey is recorded from southeast Queensland (Storey 1977) and (as *O. tuckonie* Matthews) from Dorrigo and the Gibralter Range of far northern New South Wales (Matthews 1972). It commonly was encountered from a number of our study sites south to Dingo Tops but was absent from sites further to the south (Williams and Williams, this Part and 1982).

Amphistomus primonactus Matthews was previously recorded from the Dorrigo and New England National Parks (Matthews 1974) approximately 140km to the north whilst the range of *Aptenocanthon hopsoni* (Carter) is extended from the Barrington Tops (Matthews 1974) to the Comboyne Plateau. Interestingly, this species does not reach the Lansdowne State Forest just several kilometres to the east of the Comboyne Plateau. Though Lansdowne State Forest is of comparable altitude in its northwest sector and possesses a wide variety of wet forest types extensive trapping has failed to encounter *A. hopsoni* (authors unpublished data).

Notopedaria scarpensis Matthews had not been recorded south of Dorrigo, northern New South Wales (Matthews 1976) and is the first member of the Coprini thus recorded from this region.

Of the seventeen species of dung beetles, including both open habitat and dense forest species, recorded by Matthews (1972 and 1974) from the Barrington Tops and Comboyne only *Lepanus politus* (Carter) was not encountered.

The presence of *Aptenocanthon hopsoni*, *Amphistomus primonactus* and *Notopedaria scarpensis* at applecore baited pit-traps represent the first recorded indications of carpophagy (fruit eating) in the Australian Searabaeini and Coprini. These records were obtained during trap nights in which a range of simultaneously offered bait types (eg. carrion, fungi and excrement) were available to the beetles.

Acknowledgments

We wish to express our thanks to the New South Wales National Parks and Wildlife Service and the Forestry Commission of New South Wales for permitting work to be undertaken in areas under their care. Mr T. Weir and Dr E. B. Britton, C.S.I.R.O, Canberra and Dr E. G. Matthews of the South Australian Museum kindly assisted with a number of difficult species determinations. Mr G. King, Forestry Commission, and Mr M. Dodkin, N.P.W.S., gave helpful backgrounding on vegetation types.

REFERENCES

Matthews, E. G., 1972. A revision of the Scarabaeine dung beetles of Australia. 1. Tribe Onthophagini. *Aust. J. Zool., Suppl. Ser. 9:1-330.*

Matthews, E. G., 1974. A revision of the Scarabaeine dung beetles of Australia. 2. Tribe Scarabaeini. *Aust. J. Zool., Suppl. Ser.* 24:1-221

Matthews, E.G., 1976. A revision of the Scarabaeine dung beetles of Australia. 3. Tribe Coprini. *Aust. J. Zool., Suppl. Ser.* 38:1-52.

Storey, R. I., 1977. Six new species of *Onthophagus* Latreille (Coleoptera:Scarabaeidae) from Australia. *J. Aust. ent. Soc.*, 16:313-320.

Williams, G. A. and Williams, T., 1982. A survey of the Aphodiinae, Hybosorinae and Scarabaeinae (Coleoptera: Scarabaeidae) from small wet forests of coastal New South Wales, Part I: Nowra to Newcastle. *Aust. ent. Mag. 9*:42-48.

Table 1. List of study sites and species taken at each.
(Dates of collection are followed by figures in parenthesis indicating the number of specimens taken.)

A. Allyn River Forest Park, Chichester State Forest, N.W. of Dungog. River restricted subtropical rainforest, brown loam soil.
Aphodius sp. 1.xi.1978, (1), at faeces.

Ataenius semicaecus Macleay? 23.xii.1978(1), at light.
Liparochrus fossulatus Westwood. 25.xii.1978, (2), at faeces.
Amphistomus speculifer Matthews. 25.xii.1978, (1), at faeces. Also in *Nothofagus* forest at Mt. Allyn Forest Park.
Aptenocanthon hopsoni (Carter). 1.xi.1978, (1); 23.xii.1978, (8), at faeces. Also in *Nothofagus* forest at Mt. Allyn Forest Park.
Diorygopyx asciculifer Matthews. 1.xi.1978, (1); 23.xii.1978, (3), at faeces and under logs, also in adjoining dry sclerophyll forest.
Onthophagus arrilla Matthews. 1.xi.1978, (2), at faeces.
Onthophagus capella Kirby. 1.xi.1978, (1), at light.
Onthophagus chepara Matthews. 23.xii.1978, (1), at light.
Onthophagus macrocephalus Kirby. 1.xi.1978, (1); 23.xii.1978, (1), at faeces, also in adjoining dry sclerophyll forest.
Onthophagus sydneyensis Blackburn. 1.xi.1978, (3), at faeces.

B. Copeland Tops State Forest (Fourth wet gully from western base of ascent road), W.N.W. of Gloucester. Dry type rainforest gully, brown loam soil, medium density leaf litter and low herb cover.
Aphodius sp. near *insignior* Blackburn. 6.i.1982, (3); 3.ii.1982, (4), at faeces.
Liparochrus silphoides Harold. 6.i.1982, (1); 3.ii.1982, (3), at faeces and under logs.
Diorygopyx asciculifer Matthews. 6.i.1982, (9); 3.ii.1982, (28), at faeces.
Onthophagus kiambram Storey. 3.ii.1982, (5), at faeces.
Onthophagus neostenocerus Goidanich. 3.ii.1982, (1), at faeces.
Onthophagus sp. near *nurubuan* Matthews. 6.i.1982, (1), at faeces.
Onthophagus sydneyensis Blackburn. 6.i.1982, (1), at faeces.

C. Mitchell's Creek Rest Area. N.E. section, Barrington Tops State Forest, W.N.W. of Gloucester. Warm temperate-subtropical rainforest gully. Brown loam soil with light leaf litter cover.
Aphodius sp. near *insignior* Blackburn. 6.i.1982, (16); 3.ii.1982, (35), at faeces.
Liparochrus silphoides Harold. 6.i.1982, (3); 3.ii.1982, (9), at faeces.
Amphistomus speculifer Matthews. 6.i.1982, (3); 3.ii.1982, (11), at faeces.
Aptenocanthon hopsoni (Carter). 6.i.1982, (6); 3.ii.1982, (2), at faeces.
Diorygopyx asciculifer Matthews. 6.i.1982, (10); 3.ii.1982, (34), at faeces.
Onthophagus bornemisszai Matthews. 6.i.1982, (1), under cow manure on rainforest margin.
Onthophagus kiambram Storey. 6.i.1982, (1); 3.ii.1982, (6), at faeces.
Onthophagus sp. near *nurubuan* Matthews. 6.i.1982, (1), at faeces.
Onthophagus pugnax Harold. 3.ii.1982, (1), at faeces.
Onthophagus sydneyensis Blackburn. 6.i.1982, (6), at faeces.

D. Moppy Lookout Rest Area. Barrington Tops State Forest. W.N.W. of Gloucester. Antarctic beech (*Nothofagus*) rainforest. Red-brown loam soil with light leaf litter cover.
Liparochrus silphoides Harold. 20.i.1981, (2); 6.i.1982, (4); 3.ii.1982, (23), at faeces, applecores, under logs and at u/v light on forest floor.
Aptenocanthon hopsoni (Carter). 20.i.1981, (15); 6.i.1982, (approx. 90); 3.ii.1982, (approx. 110), at faeces, bird droppings, rotting agaric fungi, fresh fish flesh, chicken bones, cow manure (as bait), marsupial droppings, applecores and under logs.
Onthophagus fuliginosus Erichson. 20.i.1981, (3); 6.i.1982, (5), at faeces.
Onthophagus longipes Paulian. 6.i.1982, (3), at faeces.
Onthophagus sp. (new species). 20.i.1981, (1), at faeces.

E. Dingo Tops Forest Park. Dingo State Forest N.W. of Wingham. (2 sites)
1. Wet sclerophyll forest immediately to the south and southeast of the park.
2. Temperate-subtropical rainforest immediately to the west and east of the park.
1. Wet sclerophyll forest. Red-brown clay loam.
Aphodius sp. near *insignior* Blackburn. 26.ii.1981, (4), at faeces.
Liparochrus silphoides Harold. 26.ii.1981, (6), at faeces and under logs.
Amphistomus prtmonactus Matthews. 26.ii.1981, (12), at faeces.
Amphistomus speculifer Matthews. 26.ii.1981, (22); 6.x.1981, (3), at faeces and chicken bones.
Aptenocanthon hopsoni (Carter). 26.ii 1981, (31), at faeces.
Diorygopyx asciculifer Matthews. 16.ii.1981, (34); 6.x.1981, (68), at faeces and chicken bones.
Notopedarta scarpensis Matthews. 26.x.1981, (4), at faeces and u/v light on forest floor.
Onthophagus ktambram Storey. 16.ii.1981, (3); 6.x.1981, (1), at faeces and chicken bones.
Onthophagus longipes Paulian. 26.ii.1981, (1), at faeces.
Onthophagus pugnax Harold. 26.ii.1981, (3), at faeces.
Onthophagus sydneyensis Blackburn. 26.ii.1981, (1); 6.x.1981, (1), at faeces and wallaby droppings.

*the elytra of a species near *Liparochrus fossulatus* Westwood were found at this site on 26.ii.1981.

2. Temperate-subtropical rainforest complex. Red-brown loam soil, medium density leaf litter.
Aphodius sp. near *insignior* Blackburn. 26.ii.1981, (2), at faeces.
Liparochrus silphoides Harold. 26.ii.1981, (2), at faeces.
Amphistomus primonactus Matthews. 26.ii.1981, (13); 8.x.1981, (3), at faeces.
Amphistomus speculifer Matthews. 26.ii.1981, (4); 8.x.1981, (3), at faeces and chicken bones.
Aptenocanthon hopsoni (Carter). 26.ii.1981, (8); 8.x.1981, (1), at faeces.
Aulacopris maximus Matthews. 26.ii.1981, (2), at faeces.
Diorygopyx asciculifer Matthews. 26.ii.1981, (5); 8.x.1981, (4), at faeces.
Notopedaria scarpensis Matthews. 26.ii.1981, (6), at faeces.
Onthophagus fuliginosus Erichson. 8.x.1981, (4), at faeces.
Onthophagus kiambram Storey. 26.ii.1981, (11); 8.x.1981, (4), at faeces and chicken bones.
Onthophagus sp. near *macrocephalus* Kirby. 16.ii.1981, (1); 8.x.1981, (1), at faeces.
Onthophagus pugnax Harold. 26.ii.1981, (2), at faeces.
Onthophagus sydneyensis Blackburn. 26.ii.1981, (1), at faeces.

F. Boorganna Nature Reserve. S.W. of Comboyne. Subtropical rainforest, red-brown loam soil with medium to heavy leaf litter cover.
Aphodius sp. near *insignior* Blackburn. 7.i.1981, (21), at faeces.
Liparochrus silphoides Harold. 7.i.1981, (8), at faeces.
Amphistomus primonactus Matthews. 7.i.1981, (6); 16.x.1981, (41), at faeces, mushrooms, fresh liver and applecores.
Amphistomus speculifer Matthews. 16.x.1981, (1), at faeces.
Aptenocanthon hopsoni (Carter). 7.i.1981, (approx. 40); 16.x.1981, (18), at faeces, mushrooms and fresh liver.
Cephalodesmius armiger Westwood. 7.i.1981, (2); 16.x.1981, (2), at faeces, mushrooms and fresh liver.
Diorygopyx incrassatus Matthews. 7.i.1981, (2), at faeces.
Notopedaria scarpensis Matthews. 16.x.1981, (2), at faeces and applecores.
Onthophagus capella Kirby. 7.i.1981, (1), at faeces.
Onthophagus kiambram Storey. 7.i.1981, (9), at faeces.
Onthophagus sydneyensis Blackburn. 7.i.1981, (11), at faeces.

Table 2. Systematic summary of species encountered.
(Letters indicate study sites; where indicated, specimens lodged in Australian National Insect Collection, Canberra)
Family Scarabaeidae.
Subfamily Hybosorinae.
Liparochrus fossulatus Westwood. A, E(1).
Liparochrus silphoides Harold. B, C, D, E(1), E(2), F. Specimens in A.N.I.C.
Subfamily Aphodiinae.
Aphodius sp. A.
Aphodius sp. near *insignior* Blackburn. B, C, E(1), E(2), F. Specimens in A.N.I.C.
Ataenius semicaecus Macleay ? A.
Subfamily Scarabaeinae.
Tribe Onthophagini.
Onthophagus arrilla Matthews. A. Specimens in A.N.I.C.
Onthophagus bornemisszai Matthews. C.
Onthophagus capella Kirby. A, F.
Onthophagus chepara Matthews. A.
Onthophagus fuliginosus Erichson. D., E(2). Specimens in A.N.I.C.
Onthophagus kiambram Storey. B., C., E(1) E(2), F. Specimens in A.N.I.C.
Onthophagus macrocephalus Kirby. A.
Onthophagus sp. near *macrocephalus* Kirby. E(2). Specimen in A.N.I.C.
Onthophagus neostenocerus Goidanich. B.
Onthophagus sp. near *nurubuan* Matthews. B, C. Specimens in A.N.I.C.
Onthophagus pugnax Harold. C, E(1), E(2). Specimen in A.N.I.C.
Onthophagus longipes Paulian, D, E(1). Specimen in A.N.I.C.
Onthophagus sydneyensis Blackburn. A, B, C, E(1), E(2), F. Specimen in A.N.I.C.
Onthophagus sp. (*capella* sp. group ?), new species, D. Specimen in A.N.I.C.
Tribe Scarabaeini.
Amphistomus primonactus Matthews. E(1), E(2), F. Specimens in A.N.I.C.
Amphistomus speculifer Matthews. A, C, E(1), E(2), F. Specimens in A.N.I.C.
Aptenocanthon hopsoni (Carter). A, C, D, E(1), E(2), F. Specimens in A.N.I.C.

Aulacopris maximus Matthews. E(2), F. Specimen in A.N.I.C.
Cephalodesmius armiger Westwood. F. Specimen in A.N.I.C.
Diorygopyx asciculiter Matthews. A, B, C, E(1), E(2). Specimens in A.N.I.C.
Diorygopyx inerassatus Matthews. F. Specimen in A.N.I.C.
Tribe Coprini
Notopedaria scarpensis Matthews. E(1), E(2), F. Specimen in A.N.I.C.

Report of Excursion to Bendigo — August 28-29th, 1982, for the Early Springtime Get together of the Victorian Field Naturalists Clubs Association

On Saturday, August 28th, a bus-load of Melbourne members met 10 private cars with members from 13 different country Field Naturalists Clubs, at the Regional Veterinary Laboratories, Department of Agriculture, Epsom, some 5.6 km. from the Bendigo fountain.

The initial excursion was to the Whipstick and was led by Mr. Frank Robbins to see the profusion of yellow wattle, *Acacia williamsonii* which was flowering over many square kilometres of very dry whipstick scrub. Bendigo is involved in this year's severe drought, but in spite of this, some small specimens of *Caladenia carnea* (Pink Fingers), *C. caerulea* (Blue Caladenia) and *Diuris maculata* (Leopard Orchid) were found. A tour was made past a Eucalyptus Distillery to an area where three mallees flourished side by side:-

Eucalyptus froggatii (Kamarooka Mallee)
Eucalyptus viridis (Green Mallee)
Eucalyptus polybractea (Blue Mallee)

In the evening a short general meeting was held at the Regional Veterinary Laboratories meeting room chaired by the President of the V.F.N.C.A., Mr. Alan Monger of Benalla. Approximately 65 members from 13 Field Naturalists Clubs attended — these included:-

Albury-Wodonga, Bairnsdale, Benalla, Bendigo, Castlemaine, Creswick, Norfolk Nats. England, Mid-Murray, Montmorency, Upper Goulburn, Melbourne, Warragul, North-east F.N.C.

Mr. William Perry of Bendigo received a certificate of honorary membership of the Victorian Field Naturalists Clubs presented by the President, Miss Wendy Clark, who later made an appeal for help with an orchid survey in the State. At the conclusion of the meeting — Mr. Laurie Leeson, Honorary Secretary of the Bendigo Club introduced Mr. Bill Flentje who enthralled the audience with his coloured slides of local birds accompanied by their calls on tape. The Bendigo ladies provided a lavish sit-down supper at the conclusion of the meeting.

Sunday August 29th proved to be the hottest August day on record, the thermometer reaching over 26°C, the first excursion was to a lake on the Bendigo Sewerage farm where numerous water birds were seen, some 53 different birds were recorded during the two days of the excursion.

Around mid-morning a visit was made to Salomons Gully Nature Reserve where the fairy wax-flower *(Eriostemon verrucosus)* was almost in full flower — a walk around the Nature Trail was led by Mr. Jim Brown.

After a picnic lunch, the participants returned home to their respective areas of Victoria, convinced that these twice yearly get-together meetings were of value not only for social reasons, but for keeping the entire Victorian Field Naturalists Clubs in communication on matters of conservation and ecology, increasing naturalist knowlege in many areas, and alerting interested persons to potential danger areas, to assist them in their efforts to stem the tides of wanton destruction of the environment of the Australian bush.

—E. K. Turner